

6048  
OCD-HOBBS

ATS-08-48

Form 3160-3  
(February 2005)UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED  
OMB No 1004-0137  
Expires March 31, 20075. Lease Serial No.  
NMNM1160476. If Indian, Allottee or Tribe Name  
NA

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.  
FEDERAL 28-119. API Well No. 30-025-38732  
TO BE DETERMINED10. Field and Pool, or Exploratory  
Ojo Chiso Morrow West

11. Sec., T. R. M. or Blk. and Survey or Area

Sec. 28, T 22 S, R 34 E

12. County or Parish  
LEA13. State  
NM1a. Type of work: ☒ DRILL☐ REENTER

Split Estate

1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone2. Name of Operator  
PETROGULF CORPORATION3a. Address 518 17TH STREET, SUITE 1455,  
DENVER, CO. 802023b. Phone No. (include area code)  
303-893-5400 EXT 139

4. Location of Well (Report location clearly and in accordance with any State requirements\*)

At surface 660' FNL, 990' FWL, section 28 Unit D

At proposed prod. zone same Capitan Controlled Water Basin

14. Distance in miles and direction from nearest town or post office\*  
20 MILES WEST OF EUNICE, LEA COUNTY, NEW MEXICO15. Distance from proposed\*  
location to nearest  
property or lease line, ft  
(Also to nearest drig. unit line, if any) 660'16. No. of acres in lease  
960 ACRES TOTAL17. Spacing Unit dedicated to this well  
320 ac  
40 acres, NWNW- Section 28.18. Distance from proposed location\*  
to nearest well, drilling, completed,  
applied for, on this lease, ft 2848' to Gaucho 21 Fed19. Proposed Depth  
13,485'20. BLM/BIA Bond No. on file  
101758221. Elevations (Show whether DF, KDB, RT, GL, etc.)  
3427' GL22. Approximate date work will start\*  
02/19/200823. Estimated duration  
30 DAYS

## 24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).

4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

CONFIDENTIAL

25. Signature

Name (Printed/Typed)

TANIA MCNUTT

Date

12/06/2007

Title

REGULATORY AND PERMITTING TECH

Approved by (Signature)

/s/ James Stovall

Name (Printed/Typed)

/s/ James Stovall

Date

JAN 25 2008

Title

FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.  
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

\*(Instructions on page 2)

RECEIVED

JAN 30 2008

HOBBS OCD

APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS  
AND SPECIAL STIPULATIONS  
ATTACHEDSEE ATTACHED FOR  
CONDITIONS OF APPROVAL

DISTRICT I  
1500 E. French Dr., Dallas, TX 75240

DISTRICT II  
1204 N. Grand Avenue, Austin, TX 78702

DISTRICT III  
1000 Rio Bravos Rd., Arizo, NM 87410

DISTRICT IV  
1200 St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals and Natural Resources Department

**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

Form C-102  
Revised October 12, 2006

Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

☐ AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

API Number <b>30-025-38732</b>	Pool Code <b>96665</b>	Pool Name <b>Gr Chiso Morrow West</b>
Property Code <b>36966</b>	Property Name <b>FEDERAL "28"</b>	Well Number <b>11</b>
OGUID No. <b>241851</b>	Operator Name <b>PETROGULF CORP.</b>	Elevation <b>3427'</b>

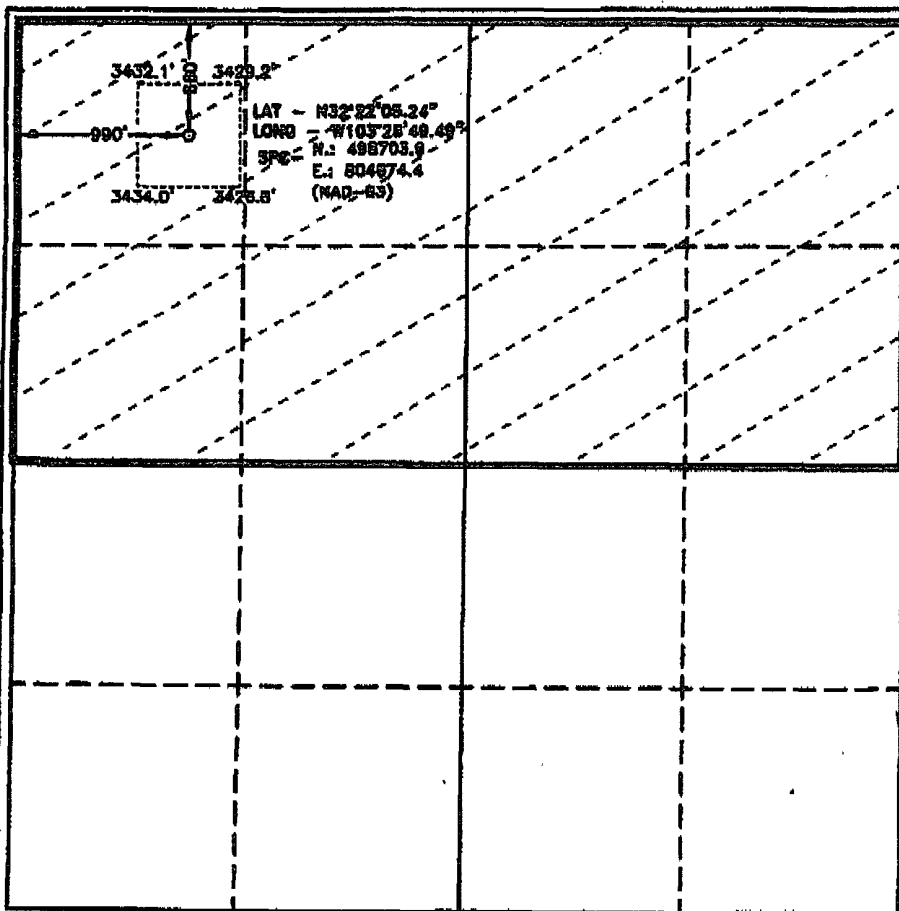
**Surface Location**

UL or lot No.	Section	Township	Range	Lot 14a	Feet from the	North/South line	Feet from the	East/West line	County
<b>D</b>	<b>28</b>	<b>22 S</b>	<b>34 E</b>		<b>660</b>	<b>NORTH</b>	<b>990</b>	<b>WEST</b>	<b>LEA</b>

**Bottom Hole Location if Different From Surface**

UL or lot No.	Section	Township	Range	Lot 14a	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres <b>320</b>	Joint or Infill	Consolidation Code	Order No.						

**NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION**



**OPERATOR CERTIFICATION**

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this operation either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

*Jack Hood* 12/6/07  
Signature Date

*Jacob Ellwood*  
Printed Name

**SURVEYOR CERTIFICATION**

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

NOVEMBER 2007  
Date Surveyed  
Signature of Professional Surveyor  
No. 1877  
Certificate No. Gary L. Jones 7977

**BASE SURVEYS**

DISTRICT I  
1625 N. French Dr., Hobbs, NM 88240  
DISTRICT II  
1301 W. Grand Avenue, Artesia, NM 88210  
DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410  
DISTRICT IV  
1220 St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised October 12, 2005

Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number <b>30-025-38732</b>	Pool Code <b>26665</b>	Pool Name <b>El Chiso Morrow West</b>
Property Code <b>36966</b>	Property Name <b>FEDERAL "28"</b>	Well Number <b>11</b>
OGRID No. <b>241851</b>	Operator Name <b>PETROGULF CORP.</b>	Elevation <b>3427'</b>

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	28	22 S	34 E		660	NORTH	990	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres <b>2.300</b>	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

	<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>Jacob Ellwood</i> 12/6/07 Signature Date</p> <p>Jacob Ellwood Printed Name</p> <p><b>SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief.</p> <p>NOVEMBER 06 2007 Date Surveyed</p> <p>Signature &amp; Seal of Professional Surveyor 7977</p> <p>Certificate No. Gary L. Jones 7977</p> <p>BASIN SURVEYS</p>
--	---

## DRILLING PLAN

### ONSHORE ORDER NO. 1

Petrogulf Corporation

#### FEDERAL 28-11

**Lease No. NMNM 116047**

NWNW, 660' FNL and 990' FWL (Surface)

NWNW, 660' FNL and 990' FWL (Bottomhole)

Section 28-T22S-R34E, N.M.P.M.

Lea County, New Mexico

### Approval of Operations on Onshore Federal and Indian Oil and Gas Leases

All lease and/or unit operations are to be conducted in such a manner that full compliance is made with the applicable laws, regulations (CFR 43, Part 3160) and the approved Application for Permit to Drill (APD). The operator is considered fully responsible for the actions of his subcontractors. A copy of the approved APD must be on location during construction, drilling and completion operations.

Approval of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease that would entitle the applicant to conduct operations thereon.

#### 1. FORMATION TOPS:

The estimated tops of important geologic markers are as follows:

Formation	Depth (TVD)	Depth (MD)	Subsea
Delaware	5,317	5,317	-1,888
Brushy Canyon	7,067	7,067	-3,638
Bone Spring	8,516	8,516	-5,087
Wolfcamp	11,485	11,485	-8,056
Strawn	11,905	11,905	-8,476
Atoka	12,207	12,207	-8,778
Morrow	12,780	12,780	-9,351

#### 2. ESTIMATED DEPTH OF WATER, OIL, GAS & OTHER MINERAL BEARING FORMATIONS:

The estimated depths at which the top and bottom of the anticipated water, oil, gas or other mineral bearing formations are expected to be encountered are as follows:

Substance	Formation	Depth
Water	Ochoa	1,900 TVD
Gas	Morrow	12,780 TVD

All shows of fresh water and minerals will be reported and protected.

### 3. **BOP EQUIPMENT:**

Figure A-1 shows a diagram of the BOP equipment to be used. Petrogulf Corporation's minimum specifications for pressure control equipment are as follows:

Ram Type: 10,000# W.P. dual ram type preventer.

Ram type preventers and associated equipment shall be tested to approved stack working pressure if isolated by test plug of to 70 percent of internal yield pressure of casing. Pressure shall be maintained for at least 10 minutes or until requirements of test are met, whichever is longer. If a test plug is utilized, no bleed-off pressure is acceptable. For a test not utilizing a test plug, if a decline in pressure of more than 10 percent in 30 minutes occurs, the test shall be considered to have failed. Valve on casing head below test plug shall be open during test of BOP stack.

Annular type preventers shall be tested to 50 percent of rated working pressure. Pressure shall be maintained at least 10 minutes or until provisions of test are met, whichever is longer.

As a minimum, the above test shall be performed:

- a. when initially installed
- b. whenever any seal subject
- c. following related repairs
- d. at 30-day intervals

Pressure tests are required before drilling out from under all casing strings set and cemented in place. Blowout preventer controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned.

Preventers will be inspected and operated at least daily to insure good mechanical working order, and this inspection recorded on the daily drilling report. Preventers will be pressure tested before drilling casing cement plugs. All BOP pressure tests must be recorded on the daily drilling report. NOTIFY THE FIELD OFFICE PETROLEUM ENGINEER AT LEAST 24 HOURS IN ADVANCE OF PRESSURE TESTS.

Valves shall be tested from working pressure side during BOPE tests with all down stream valves open.

When testing the kill line valve(s) the check valve shall be held open with the ball removed.

Annular preventers shall be functionally operated at least weekly.

Pipe and blind rams shall be activated each trip; however, this function need not be performed more than once a day.

A BOPE pit level drill shall be conducted weekly for each drilling crew.

Pressure tests shall apply to all related well control equipment.

All of the above described tests and/or drills shall be recorded in the drilling log. Test charts, with individual test results identified, shall be maintained on location while drilling and shall be made available to a BLM representative upon request.

The choke manifold, BOP extension rods and hand wheels will be located outside the substructure. The hydraulic BOP closing unit will be located at least 100 ft from the well head, with the remote control unit on the rig floor. The casing head and BOP will be flanged 13-3/8" 10,000 psi W.P. Kill line will be 3" I.D. with burst pressure rating of at least 10,000 psi. These items will be pressure tested concurrently with BOP's. The BOP will be tested when the stack is first installed on the well. It will also be tested at each casing shoe and at least every 30 days. BOP and choke manifold sizes will be in accordance with API-RP-53 as per the attached. See attached schematic of choke manifold.

- a. The size and rating of the BOP stack is shown on the attached diagram.
- b. A choke line and a kill line are to be properly installed. The kill line is not to be used as a fill-up line.
- c. The accumulator system shall have a pressure capacity to provide for repeated operation of hydraulic preventers.
- d. Drill string safety valve(s), to fit all tools in the drill string, are to be maintained on the rig floor while drilling operations are in progress.

#### **4. CASING AND CEMENTING PROGRAM:**

- a. The proposed casing and cementing program shall be conducted as approved to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use. The casing setting depth shall be calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. Determination of casing setting depth shall be based on all relevant factors, including; presence/absence of hydrocarbons; fracture gradients; usable water zones; formation pressures; lost circulation zones; other minerals; or other unusual characteristics. All indications of usable water shall be reported.

- b. Casing design shall assume formation pressure gradients of 0.44 to 0.50 psi per foot for exploratory wells (lacking better data).
- c. Casing design shall assume fracture gradients from 0.70 to 1.00 psi per foot for exploratory wells (lacking better data).
- d. Casing collars shall have a minimum clearance of 0.422 inches of all sides in the hole/casing annulus, with recognition that variances can be granted for justified exceptions.
- e. All waiting on cement times shall be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.
- f. All indications of usable water shall be reported to the authorized officer prior to running the next string of casing or before plugging orders are requested, whichever occurs first.
- g. Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a suitable pre-flush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.
- h. All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.
- i. The proposed casing program will be as follows:

Purpose	Depth	Hole size	O.D.	Weight	Grade	Type	New/Used
Surface	0-1,050'	17-1/2"	13-3/8"	61#	J-55	ST&C	New
Interm.	0-5,000'	12-1/4"	9-5/8"	40#	N-80	LT&C	New
Liner	4,700'-11,500'	8-3/4"	7"	29#	P-110	LT&C	New
Prod.	0-13,485'	6"	4-1/2"	13.5#	P-110	LT&C	New

Purpose	Joint Strength SF	Internal Yield SF	Body Yield SF	Collapse SF
Surface	1.8	1.2	1.25	1.125
Interm.	1.8	1.2	1.25	1.125
Liner	1.8	1.2	1.25	1.125
Prod.	1.8	1.2	1.25	1.125

- j. Casing Design Subject to revision based on geologic conditions encountered.

- k. The cement program will be as follows:

String	Depth	TOC	Cement Type	Yield (ft <sup>3</sup> /sk)	Volume (sk)
Surface	0-1,050'	Surface	Lead: 11.4 #/gal Premium Plus Tail: 14.8 #/gal Premium Plus	Lead: 2.91 Tail: 1.35	Lead: 426 Tail: 162
Interm.	0-5,000'	Surface	Lead: 11.9 #/gal Interfill C Tail: 14.8 #/gal Premium Plus	Lead: 2.47 Tail: 1.35	Lead: 633 Tail: 624
Liner	4,700'-11,500'	8,000'	Lead: 11.5 #/gal Premium Tail: 14.2 #/gal Premium 50/50 POZ	Lead: 2.94 Tail: 1.21	Lead: 148 Tail: 120
Prod.	0-13,485'	8,000'	Lead: 14.2 #/gal Premium 50/50 POZ Tail: 14.2 #/gal Premium 50/50 POZ	Lead: 1.37 Tail: 1.27	Lead: 276 Tail: 148

see  
COA →

1. After cementing but before commencing any test, the casing string shall stand cemented until the cement has reached a compressive strength of at least 500 psi at the shoe. WOC time shall be recorded in the driller's log.
- m. The following reports shall be filed with the Area manager within 30 days after the work is completed.
  1. Progress reports, Form 3160-5 "Sundry notices and Reports on Wells", must include complete information concerning:
    - Setting of each string of casing, showing the size, grade, weight of casing set, hole size, setting depth, amounts and type of cement used, whether cement circulated or the top of the cement behind the casing, depth of cementing tools used, casing test method and results, and the date work was done. Show the spud date on the first reports submitted.
- n. Auxiliary equipment to be used is as follows:
  1. Kelly cock.
  2. No bit float is deemed necessary.
  3. A sub with a full opening valve.

## 5. MUD PROGRAM:

- a. The proposed circulating mediums to be employed in drilling are as follows:  
Mud Type: Fresh Water / Brine Water / PHPA Sweeps:

String	Hole size (in)	TVD (ft)	Yield Point (lb/100 sq. ft)	Type	Mud Weight	Viscosity	API Fluid Loss (mL/30min)	Total Solids (%)
Surface	17-1/2"	1,050'	3-6	Fresh Water	8.4-9.0	28-36	<20	10
Int.	12-1/4"	5,000'	1-3	Brine Water	9.0-10.0	28-30	<20	6
Liner	8-3/4"	11,500'	1-18	Cut Brine Water	8.4-10.0	28-40	8-10	6
Prod.	6"	13,485'	12-20	Brine Water w/ Polymer	10.0-13.0	37-50	6-8	6

see  
COA →



There will be sufficient mud on location to control a blowout should one occur.

A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

- b. Mud monitoring equipment to be used is as follows:
  - 1. Periodic visual monitoring of the mud system will be done to determine volume changes.
- c. The concentration of hazardous substances in the reserve pit at the time of pit backfilling must not exceed the standards set forth in the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).
- d. All oil and gas drilling related CERCLA hazardous wastes/substances removed from a location and not reused at another drilling location must be disposed of at an EPA approved hazardous waste facility.

#### **6. TESTING, LOGGING & CORING:**

The anticipated type and amount of testing, logging and coring are as follows:

- a. No drill stem tests are anticipated.
- b. The logging program will consist of a GR Dual Induction log, a GR Neutron-Porosity w/ Caliper log, and a Sonic log from Total Depth (13,485' TVD) to Intermediate Casing Shoe (5,000' TVD).
- c. No coring is anticipated.
- d. Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (Form 3160-4) will be submitted not later than 30 days after completion of the well or after completion of operations being performed, in accordance with 43 CFR 3164. Two copies of all logs, core descriptions, core analysis, well-test data, geologic summaries, sample description, and all other surveys or data obtained and compiled during the drilling, workover, and/or completion operations, will be filed with Form 3160-4. Samples (cuttings, fluids, and/or gases) will be submitted when requested by the authorized officer (AO).

#### **7. ABNORMAL PRESSURES AND HYDROGEN SULFIDE:**

- a. The expected bottom hole pressure is +/- 7,665 psi based off of Offset DST information, refer to Scout Ticket, Figure A-2. No abnormal pressures or temperatures are anticipated.
- b. No hydrogen sulfide gas is anticipated, however, if H<sub>2</sub>S is encountered the guidelines in Onshore Order No. 6 will be complied with.

**8. OTHER INFORMATION AND NOTIFICATION REQUIREMENTS:**

- a. Drilling is planned to commence at the end of January 2008. It is anticipated that completion operations will begin within 30 days after the well has been drilled.
- b. It is anticipated that the drilling of this well will take approximately 50 days.
- c. The proposed completion program is as follows:  
Morrow and Morrow Shale zones with porosity and permeability will be selectively perforated. These zones will be selectively acidized and then fractured stimulated in stages. The wells will be produced up 2-3/8" tubing utilizing packerless completions.
- d. The following shall be entered on the driller's log:
  1. Blowout preventer pressure tests, including test pressures and results;
  2. Blowout preventer tests for proper functioning;
  3. Blowout prevention drills conducted;
  4. Casing run, including size, grade, weight, and depth set;
  5. How the interval was cemented, including amount of cement, type, whether cement circulated, location of the cementing tools, etc.;
  6. WOC time for each casing string;
  7. Casing pressure tests after cementing, including test pressures and results.
- e. Section 102(b)(3) of the Federal Oil and gas Royalty management Act of 1982, as implemented by the applicable provision of the operating regulations at Title 43 CFR 3162.4-1(c), requires that "not later than the 5<sup>th</sup> business day after any well begins production on which royalty is due anywhere on the lease site or allocated to a lease site, or resumes production in the case of a well which has been off production for more than 90 days, the operator shall notify the authorized officer by letter or sundry notice, Forms 3160-5 or orally to be followed by a letter or sundry notice, of the date on which such production has begun or resumed."
- f. Notification Requirements:
  1. The BLM in Carlsbad Field Office, New Mexico, (phone: 505-234-5972) will be notified verbally not more than 48 hours after the well is spudded, or on the next regular work day.
  2. The Field Office Engineer will be notified at least 24 hours in advance of BOP pressure tests.
  3. The BLM will be notified verbally at least 48 hours prior to running/cementing surface casing.
  4. No location will be constructed or moved, no well will be plugged and no drilling or workover equipment will be removed from a well to be placed in a suspended status without prior approval of the BLM - Carlsbad Field Office. If operations are to be suspended for more than 30 days, prior approval of the BLM - Carlsbad Field Office must be obtained and notification given before resumption of operations.

5. In the event abandonment of a drilling well is desired, an oral request may be granted by the Field Office Petroleum Engineer, but must be timely followed within 15 days with a "Notice of Intention to Abandon" (form 3160-5).
6. Unless the plugging is to take place immediately upon receipt of oral approval, the Field office Petroleum Engineer must be notified at least 48 hours in advance of the plugging of the well, in order that a representative may witness plugging operations. If a well is suspended or abandoned, all pits must be fenced immediately until they are backfilled. The "Subsequent Report of Abandonment" (form 3160-5 must be submitted within 30 days after the actual plugging of the well bore, reporting where the plugs were placed, and the current status of the surface restoration. If surface restoration has not been completed at that time, a follow-up report on form 3160-5 should be filed when all surface restoration work has been completed and the location is considered ready for final inspection.

The following standards apply to the abandonment of newly drilled dry or non-productive wells in accordance with 43 CFR 3162.3-4. Approval shall be obtained prior to the commencement of abandonment. All formations bearing usable-quality water, oil, gas, or geothermal resources, and/or a prospectively valuable deposit of minerals shall be protected. Approval may be given orally by the authorized officer before abandonment operations are initiated. This oral request and approval shall be followed by a written notice of intent to abandon filed not later than the fifth business day following oral approval. Failure to obtain approval prior to commencement of abandonment operations shall result in immediate assessment under 43 CFR 3153.1(b)(3). The hole shall be in static condition at the time any plugs are placed (this does not pertain to plugging lost circulation zones). Within 30 days of completion of abandonment, a subsequent report of abandonment shall be filed.

7. The spud date will be reported orally to the Carlsbad Field Office within 48 hours after spudding. If the spudding occurs on a weekend or holiday, wait until the following regular workday to make this report.
  8. Periodic drilling progress reports must be filed directly with the BLM-Carlsbad Field Office on a periodic basis and form or method as may be acceptable to the petroleum Engineer.
  9. In accordance with NTL-1, this well must be reported on the "Monthly report of Operations" (form 3160-6) starting with the month in which operations commence and continue each month until the well is physically plugged and abandoned. This report should be filed in duplicate, directly with the Minerals management Service (MMS).
- g. There shall be no deviation from the proposed drilling and/or workover program as approved. Safe drilling and operating practices must be observed. All wells, whether drilling, producing, suspended or abandoned, shall be identified in accordance with CFR 43, 3162.2. There shall be a sign or marker with the name

of the operator, lease serial number, well number and surveyed description of the well. Any changes in operation must have prior approval from the BLM- Carlsbad Field Office -Petroleum engineer.

- h. Any change in the program must be approved by the BLM- Carlsbad Field Office. "Sundry Notices and Reports on Wells" (form 3160-5) must be filed for all changes of plans and other operations in accordance with CFR 43, 3162.2. Emergency approval may be obtained orally, but such approval does not waive the written report requirement. Any additional construction, reconstruction, or alterations of facilities, including roads, gathering lines, batteries, etc., which will result in the disturbance of new ground, will require the filing of suitable plan pursuant to Onshore Oil & Gas Order No 1 of CFR 43, 3164.1 and prior approval by the BLM- Carlsbad Field Office.
- i. If a replacement rig is contemplated for completion operations, a "Sundry Notice" (form 3160-5) to that effect must be filed for prior approval of the BLM- Carlsbad Field Office and all conditions of this approved plan are applicable during all operations conducted with the replacement rig.
- j. Whether the well is completed as a dry hole or as a producer, "Well Completion and Recompletion Report and Log" (form 3160-4) will be submitted not later than 30 days after completion of the well or after completion of operations being performed, in accordance with CFR 43, 3162.4-1. Two copies of all logs run, core descriptions, and all other surveys or data obtained and compiled during drilling, workover, and/or completion operations, will be filed on form 3160-4. Samples (cuttings, fluid and/or gas) will be submitted only when requested by the BLM- Carlsbad Field Office.
- k. All off-lease storage, off-lease measurement, commingling on-lease or off-lease will have prior written approval from BLM- Carlsbad Field Office.
- l. The oil and gas measurement facilities will be installed on the well location. Oil and gas meters will be calibrated in place prior to any deliveries. The Field Office Petroleum Engineer will be provided with a date of the meter calibration and all future meter proving schedules. A copy of the meter calibration reports will be submitted to the BLM- Carlsbad Field Office. All meter measurement facilities will conform to the API standards for liquid hydrocarbons and the AGA standard for natural gas measurement.
- m. A schematic facilities diagram as required by CFR 43, Part 31262.7-2, 3162.7-3, and 3162.7-4 shall be submitted to the BLM- Carlsbad Field Office within 30 days of installation or first production, whichever occurs first. All site security regulations as specified in Onshore Oil & Gas Order No. 3 and CFR 43, Part 3162.7 shall be adhered to. All product lines entering and leaving hydrocarbon storage tanks will be effectively sealed in accordance with 3162.7-4.

- n. This APD is subject to the requirement that, should the well be successfully completed for production, the BLM- Carlsbad Field Office must be notified when it is placed in a producing status. Such notification will be by e-mail or written communication and must be received in this office by no later than the fifth business day following the date on which the well is placed on production. The notification shall provide, as a minimum, the following informational items:
  1. Operator name, address, and telephone number.
  2. Well name and number.
  3. Well location (1/4, 1/4, Section, Township, Range and PM)
  4. Date well was placed in a producing status (date of first production for Which royalty will be paid)
  5. The nature of the well's production, (i.e., crude oil, or crude oil and casing head gas, or natural gas and entrained liquid hydrocarbons).
  6. The Federal or Indian lease prefix and number on which the well is located. Otherwise, the non-Federal or non-Indian land category, i.e., State or private.
  7. As appropriate, the unit agreement name, number and participating area name.
  8. As appropriate, the communitization agreement number.
- o. Any venting or flaring of gas will be done in accordance with Notice to Lessees (NTL4A) and may need prior approval from the Field Office Petroleum Engineer.
- p. All undesirable events (fires, accidents, blowouts, spills, discharges) as specified in Notice to Lessee (NTL-3A) will be reported to the BLM- Carlsbad Field Office. Major events will be reported verbally within 24 hours, followed by a written report within 15 days. "Other than Major Events" will be reported in writing within 15 days. "Minor Events" will be reported on the monthly Report of Operations and Production (Form 3160-6).

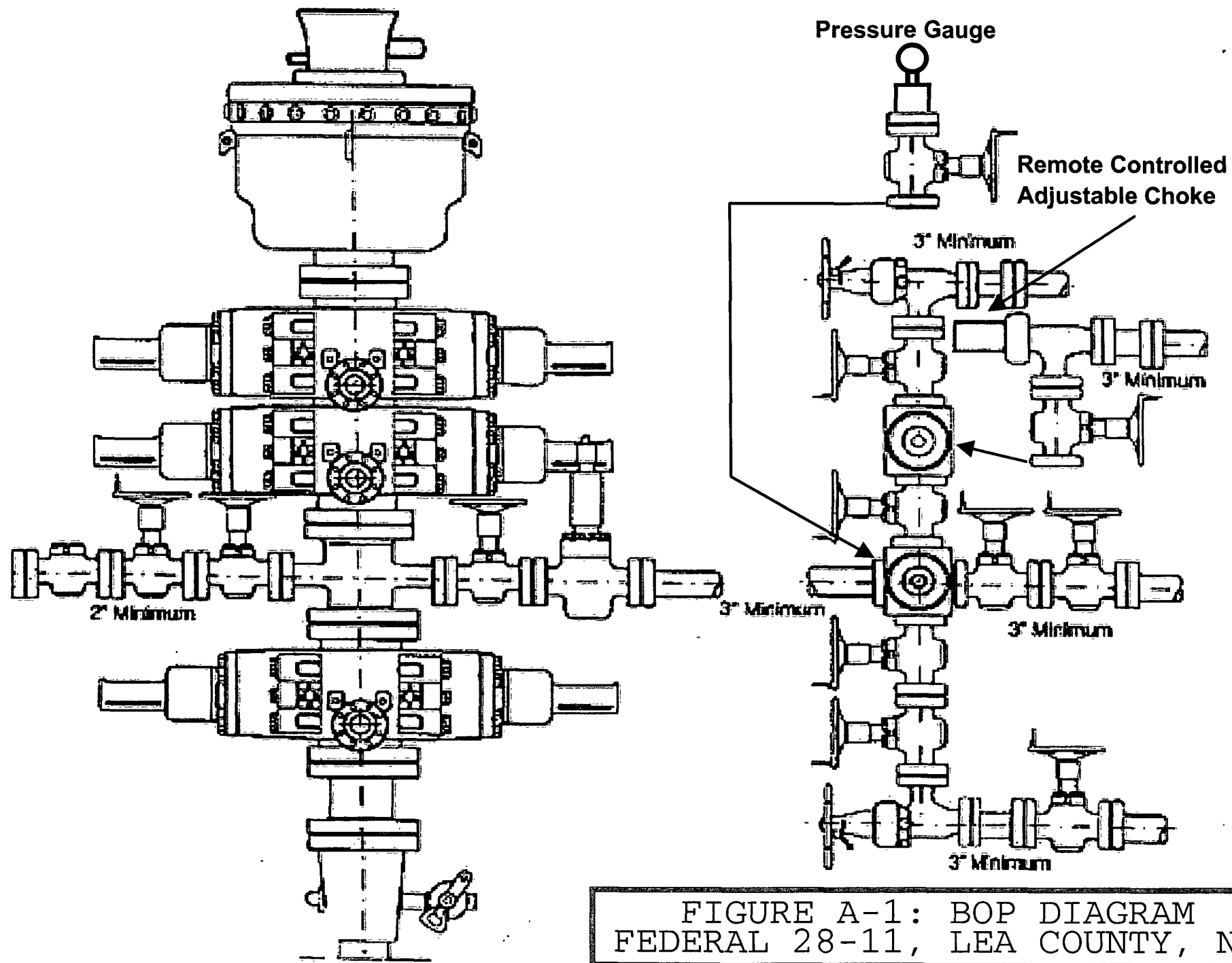


FIGURE A-1: BOP DIAGRAM  
FEDERAL 28-11, LEA COUNTY, NM

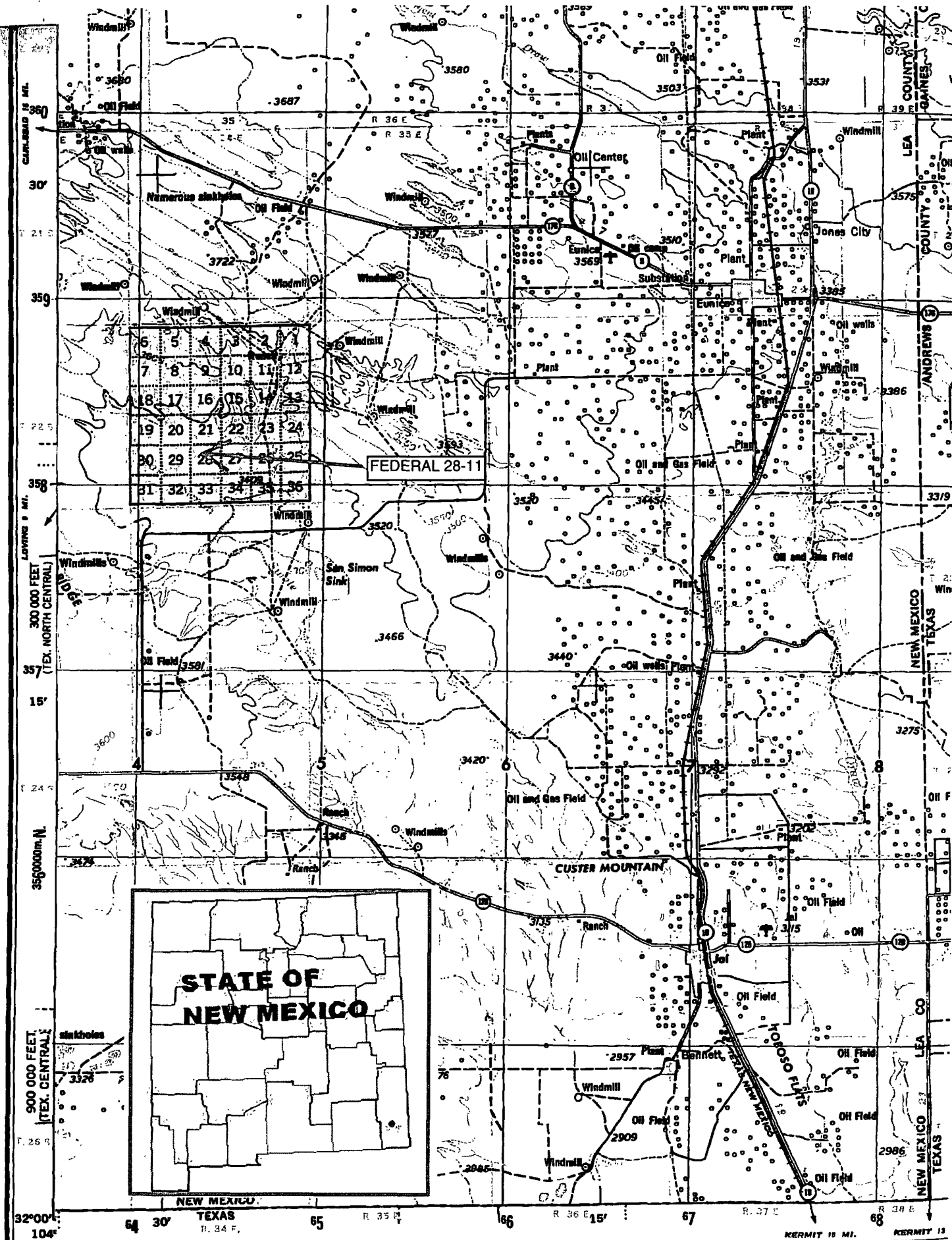
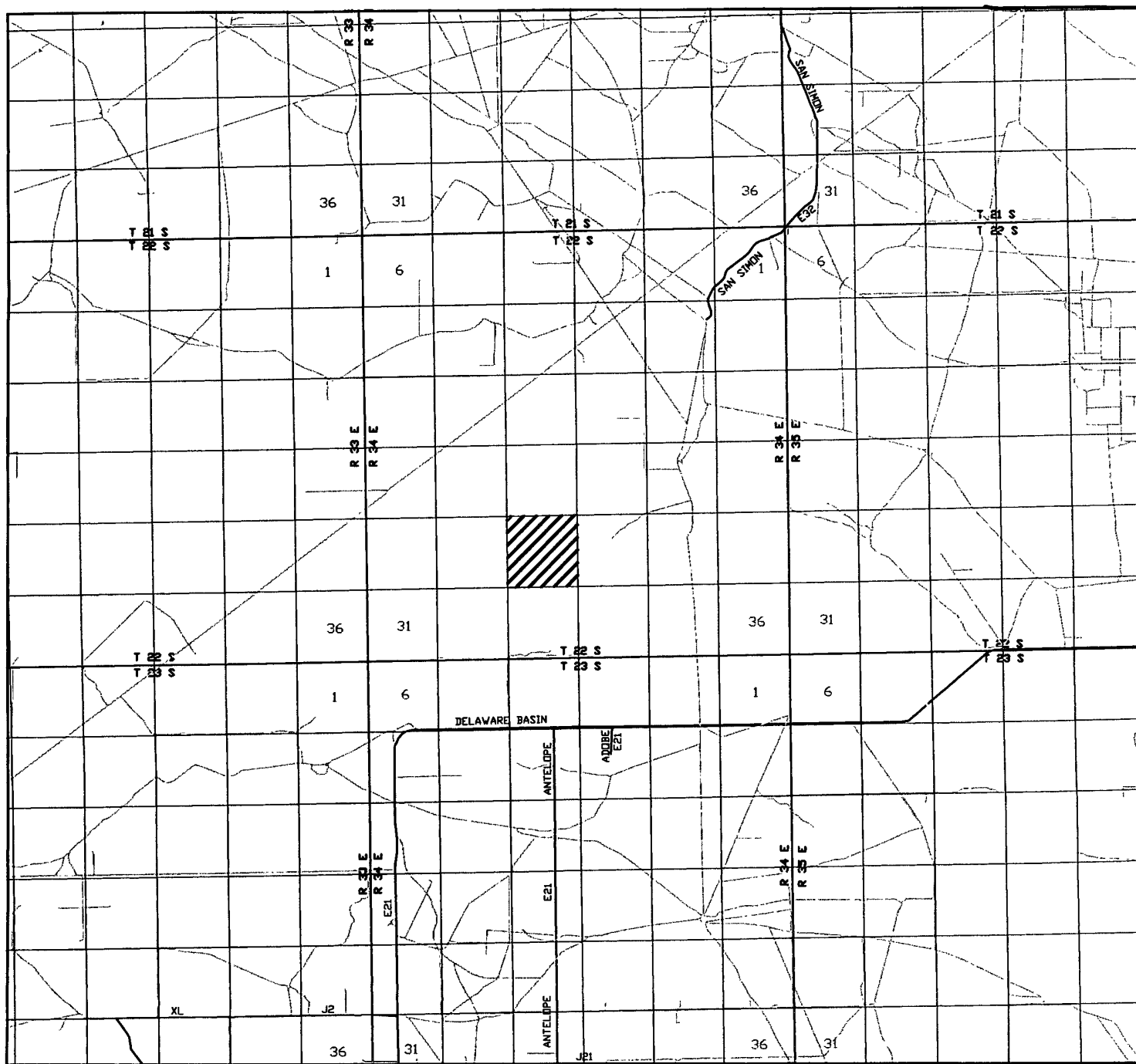


FIGURE A-3: GENERAL LOCATION MAP  
 FEDERAL 28-11, LEA COUNTY, NM



FEDERAL 28 #11

Located at 660' FNL and 990' FWL

Section 28, Township 22 South, Range 34 East,  
N.M.P.M., Lea County, New Mexico.



P.O. Box 1786  
1120 N. West County Rd.  
Hobbs, New Mexico 88241  
(505) 393-7316 - Office  
(505) 392-3074 - Fax  
basinsurveys.com

W.O. Number: JMS 18724TR

Survey Date: 11-05-2007

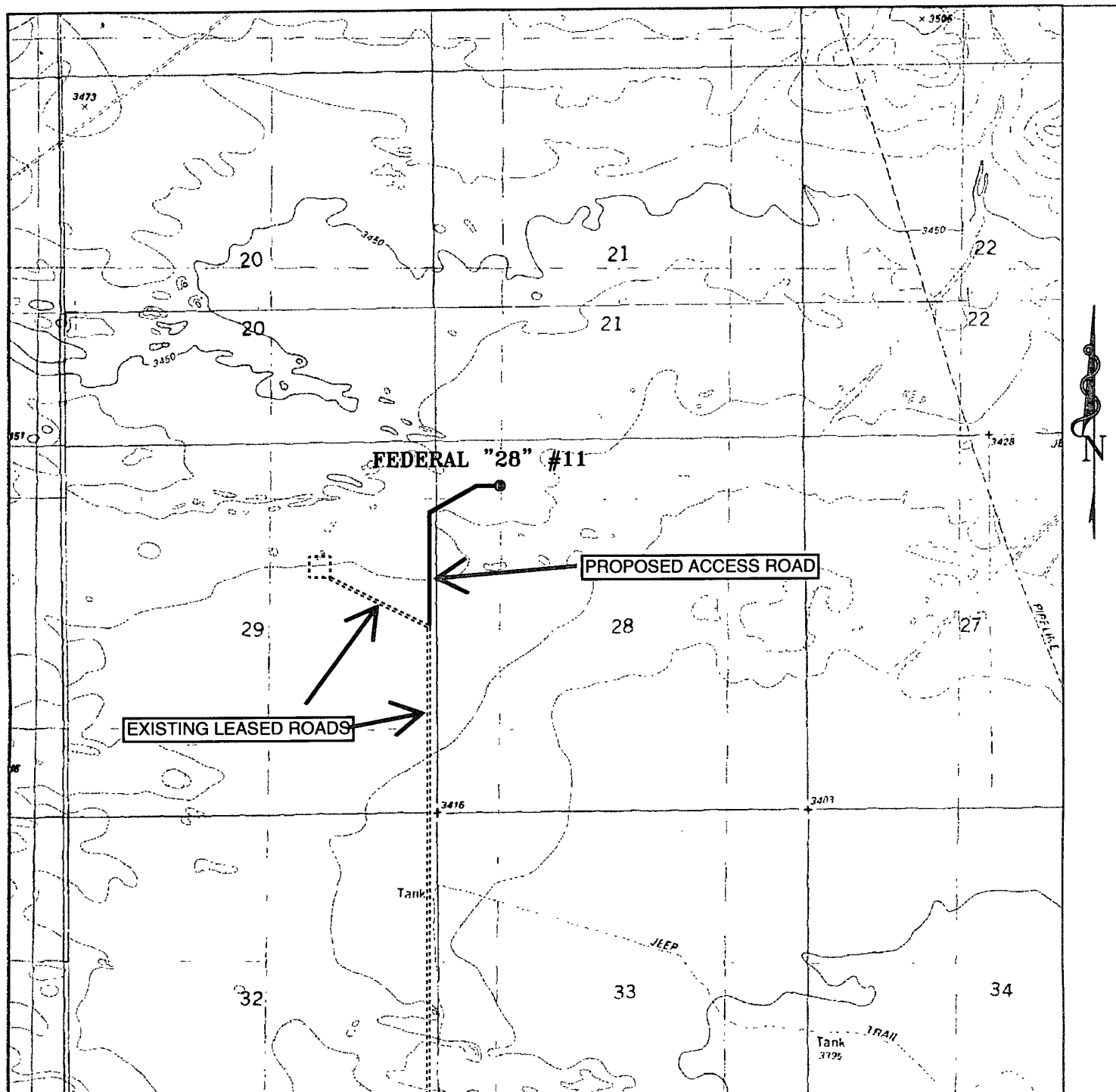
Scale: 1" = 2 MILES

Date: 11-09-2007

PETROGULF  
CORP.

FIGURE A-4: VICINITY MAP





### FEDERAL "28" #11

Located at 660' FNL and 990' FWL  
 Section 28, Township 22 South, Range 34 East,  
 N.M.P.M., Lea County, New Mexico.



P.O. Box 1786  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (505) 393-7316 - Office  
 (505) 392-3074 - Fax  
 basinsurveys.com

W.O. Number: JMS 18724T

Survey Date: 11-05-2007

Scale: 1" = 2000'

Date: 11-09-2007

**PETROGULF  
CORP.**

FIGURE A-5: WELL LOCATION AND ROADS-QUAD MAP

SECTION 28, TOWNSHIP 22 SOUTH, RANGE 34 EAST, N.M.P.M.,  
LEA COUNTY, NEW MEXICO.

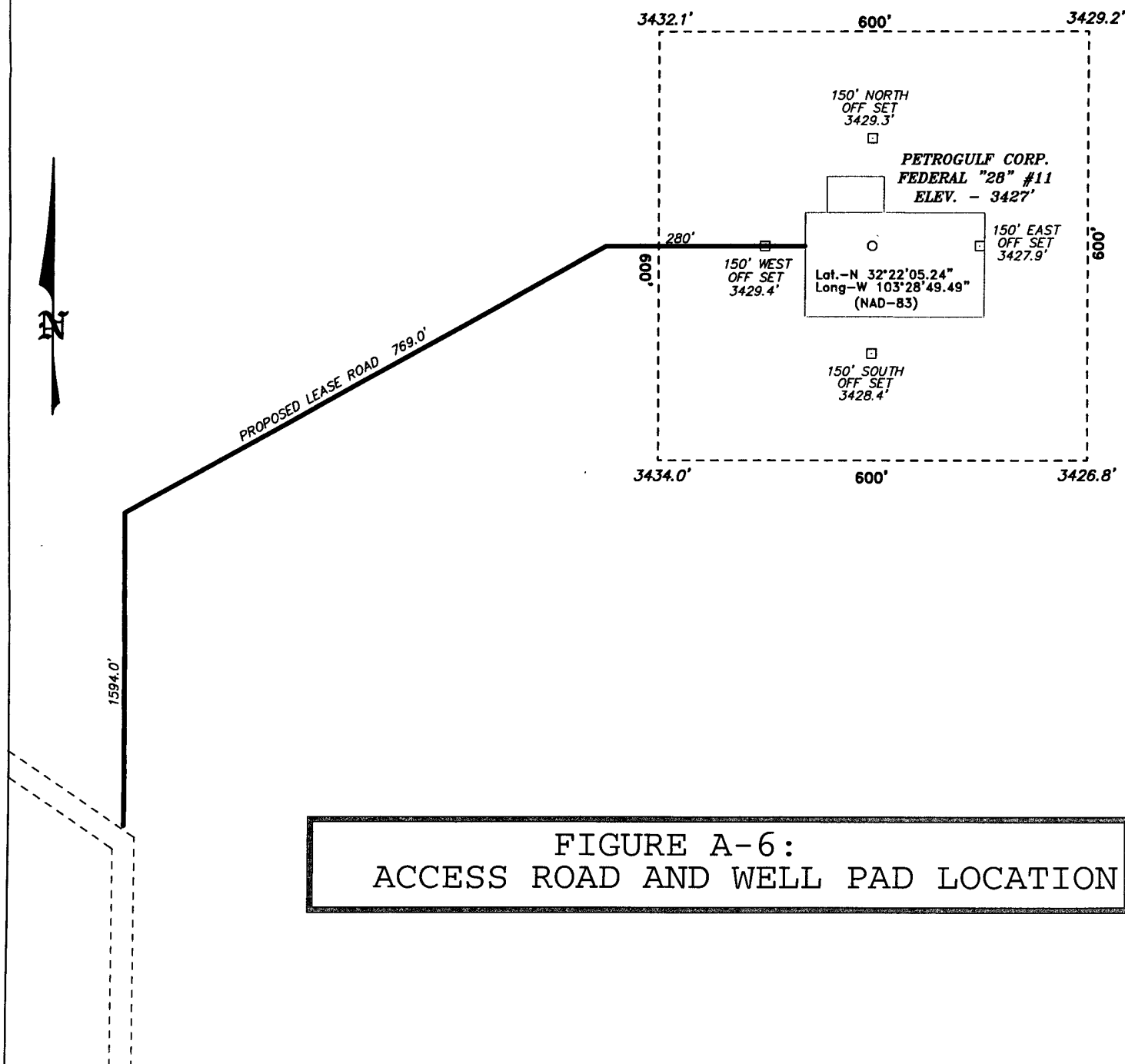
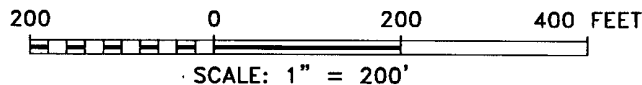


FIGURE A-6:  
ACCESS ROAD AND WELL PAD LOCATION

DIRECTIONS TO LOCATION:

FROM THE JUNCTION OF CO. RD. ANTELOPE AND CO. RD. DELAWARE BASIN, GO WEST ON DELAWARE BASIN FOR 0.6 MILES TO LEASE ROAD, ON LEASE ROAD GO NORTH 2.5 MILES TO LEASE ROAD, ON LEASE ROAD GO WEST 0.3 MILES TO PROPOSED LEASE ROAD.



**BASIN SURVEYS** P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 18724 Drawn By: J. SMALL

Date: 11-09-2007 Disk: 18724W JMS

**PETROGULF CORP.**

REF: FEDERAL "28" #11 / WELL PAD AND TOPO

THE FEDERAL "28" #11 LOCATED 660'

FROM THE NORTH LINE AND 990' FROM THE WEST LINE OF

SECTION 28, TOWNSHIP 22 SOUTH, RANGE 34 EAST,

N.M.P.M., LEA COUNTY, NEW MEXICO.

Survey Date: 11-05-2007 Sheet 1 of 1 Sheets

# PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Petrogulf Corporation
LEASE NO.:	NMNM116047
WELL NAME & NO.:	Federal 28 No. 11
SURFACE HOLE FOOTAGE:	660' FNL & 990' FWL
BOTTOM HOLE FOOTAGE:	Same
LOCATION:	Section 28, T. 22 S., R 34E., NMPM
COUNTY:	Lea County, New Mexico

## TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
  - Lesser Prairie Chicken
- ☐ **Construction**
  - Notification
  - Topsoil
  - Reserve Pit
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
- ☐ **Production (Post Drilling)**
  - Well Structures & Facilities
- ☐ **Reserve Pit Closure/Interim Reclamation**
- ☐ **Final Abandonment/Reclamation**

## **I. GENERAL PROVISIONS**

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## **II. PERMIT EXPIRATION**

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

## **III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## **IV. NOXIOUS WEEDS**

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

## **V. SPECIAL REQUIREMENT(S)**

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 15 through June 15 annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (505) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

### **B. TOPSOIL**

There is no measurable soil on this well pad to stockpile. No topsoil stockpile is required.

### **C. RESERVE PITS**

The reserve pit shall be constructed and closed in accordance with the NMOCD rules.

The reserve pit shall be constructed 50' X 80' on the North side of the well pad.

The reserve pit shall be constructed, so that upon completion of drilling operations, the dried pit contents shall be buried a minimum depth of three feet below ground level. Should the pit content level not meet the three foot minimum depth requirement, the excess contents shall be removed until the required minimum depth of three feet below ground level has been met. The operator shall properly dispose of the excess contents at an authorized disposal site.

The reserve pit shall be constructed and maintained so that runoff water from outside the location is not allowed to enter the pit. The berms surrounding the entire perimeter of the pit shall extend a minimum of two (2) feet above ground level. At no time will standing fluids in the pit be allowed to rise above ground level.

The reserve pit shall be fenced on three (3) sides during drilling operations. The fourth side shall be fenced immediately upon rig release.

### **D. FEDERAL MINERAL MATERIALS PIT**

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Carlsbad Field Office at (505) 234-5972.

#### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

#### **F. ON LEASE ACCESS ROADS**

##### **Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

##### **Surfacing**

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

##### **Crowning**

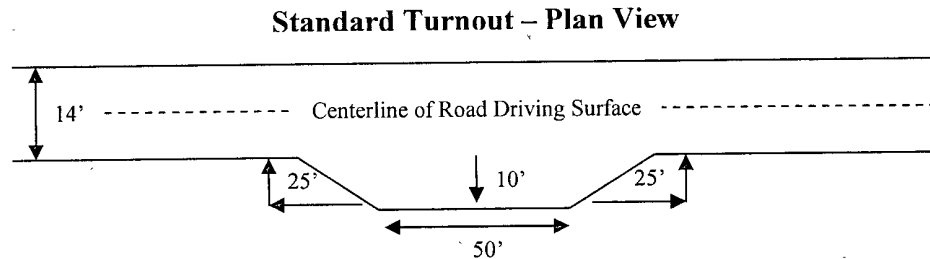
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

##### **Ditching**

Ditching shall be required on both sides of the road.

## Turnouts

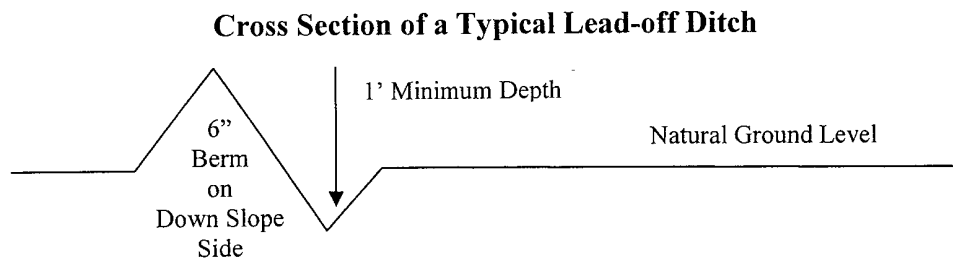
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



## Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);



### **Formula for Spacing Interval of Lead-off Ditches**

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

### **Culvert Installations**

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

### **Cattleguards**

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

### **Fence Requirement**

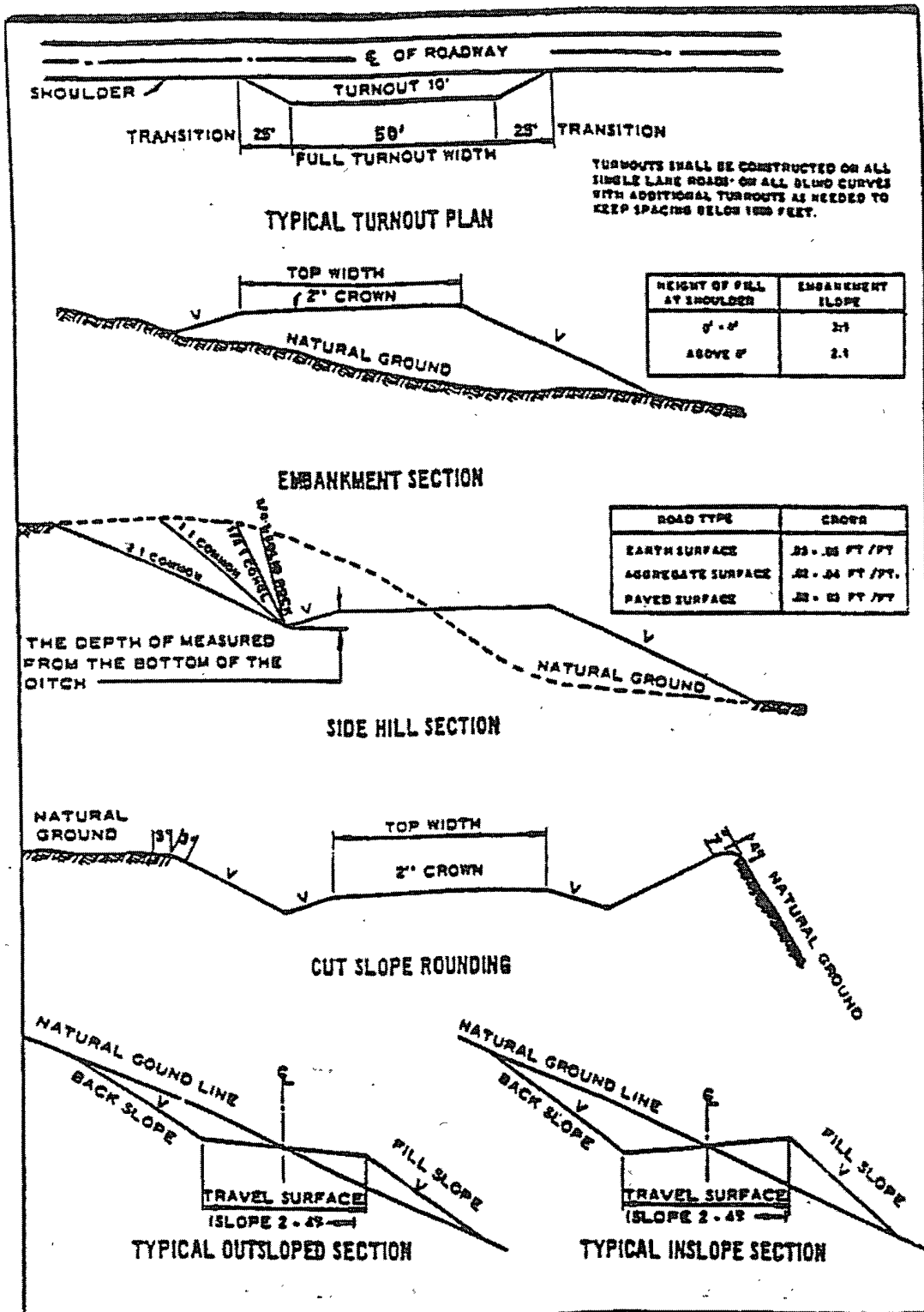
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

### **Public Access**

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Figure 1 – Cross Sections and Plans For Typical Road Sections



## VII. DRILLING

### A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Lea County**

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,  
(575) 393-3612

1. **Although Hydrogen Sulfide has not been reported in this section, it is always a possible hazard. It has been reported in nearby sections measuring 500-1500 ppm. It is recommended that H<sub>2</sub>S monitoring equipment be on location. If Hydrogen Sulfide is encountered, please report measured amounts to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

### B. CASING

1. The 13-3/8 inch surface casing shall be set **a minimum of 25 feet into the Rustler Anhydrite and above the salt at approximately 1050 feet** and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement). **Please provide WOC times to inspector for cement slurries.**

- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial action will be done prior to drilling out that string.

**Possible lost circulation in the Artesia Group and Capitan Reef.**

**Possible water flows in the Artesia and Salado Groups.**

**Possible high pressure gas bursts in the Wolfcamp and high pressure in the Pennsylvanian section.**

**It is anticipated that the Capitan Reef will be encountered at approximately 4100'. As soon as lost circulation is encountered, the operator is to switch to fresh water and use to the intermediate casing setting depth of 5000', which is the base of the Capitan Reef.**

- 2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

- ☒ Cement to surface. If cement does not circulate see B.1.a-d above.  
**Please provide WOC times to inspector for cement slurries.**

**Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i.**

- 3. The minimum required fill of cement behind the 7 inch intermediate liner is:

- ☒ **Cement to come to top of liner.** Operator shall provide method of verification. **Liner to tie-back at least 200 feet into previous casing string.**  
**Please provide WOC times to inspector for cement slurries.**  
**Additional cement will be required.**

**Formation below the 7" shoe to be tested according to Onshore Order 2.III.B.1.i.**

- 4. The minimum required fill of cement behind the 4-1/2 inch production casing is:

- ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Please provide WOC times to inspector for cement slurries.**

- 5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

### C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8"** intermediate casing shoe shall be **10,000 (10M)** psi.
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. The tests shall be done by an independent service company.
  - b. The results of the test shall be reported to the appropriate BLM office.
  - c. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
  - d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.
  - e. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation **if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days**. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

### D. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** formation, and shall be used until production casing is run and cemented.

**E. DRILL STEM TEST**

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

**Engineer on call phone (after hours):      Carlsbad: (575) 706-2779**

**WWI 010808**

## **VIII. PRODUCTION (POST DRILLING)**

### **A. WELL STRUCTURES & FACILITIES**

#### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

#### **Containment Structures**

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

#### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color  
Shale Green, Munsell Soil Color Chart # 5Y 4/2

## **IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE**

### **A. INTERIM RECLAMATION**

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

At the time reserve pits are to be reclaimed, operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

### **B. RESERVE PIT CLOSURE**

The reserve pit, when dried and closed, shall be recontoured, all trash removed, and reseeded as follows:



### Seed Mixture for LPC Sand/Shinnery Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

\*\*Four-winged Saltbush 5lbs/A

\* This can be used around well pads and other areas where caliche cannot be removed.

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed  
(Insert Seed Mixture Here)

## **X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS**

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the private surface land owner agreement.